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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,437	06/25/2003	Leping Huang	088245-0113	6335

23524 7590 04/09/2008

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EXAMINER	
NG, CHRISTINE Y	
ART UNIT	PAPER NUMBER
2616	
MAIL DATE	DELIVERY MODE
04/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/606,437	HUANG, LEPING	
	Examiner	Art Unit	
	CHRISTINE NG	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36-39,42,48-54,57,59-61 and 64* is/are rejected.

7)☒ Claim(s) *40,41,43-47,55,56,58,62,63 and 65* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 36, 39, 42, 48-51, 54, 57, 59, 61 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,084,858 to 6,804,532 to Moon et al in view of U.S. Publication No. 2002/0142789 to Kuhl et al.

Referring to claims 36, 51 and 59, Moon et al disclose in Figure 4 a method of selecting a route for communicating information in a communication network. The method comprises:

Calculating (steps 154,156,158) a connectivity metric for a plurality of links defining each of a plurality of routes that connect a start node with an end node, each link of the plurality of links including a first node and a second node;

Determining (steps 154,156,158) a total connectivity metric for each of the plurality of routes based on the calculated connectivity metric for the plurality of links defining each of the plurality of routes.

Selecting (step 160) a route in a communication network for communicating information between the start node and the end node from the plurality of routes based on the determined total connectivity. A router determines the optimal path to a destination by calculating a metric of each link in all available paths, determining the

total metric of all links in the path, and then selecting the optimal path. A metric can be a path length which is based on the sum of a cost associated with each link that is included in a particular path. Refer to Column 9, lines 9-27; and Column 10, line 50 to Column 12, line 34.

Moon et al do not specifically disclose wherein the first node is a first type of node selected from a first master node, a first slave node, and a first multiple network participant node, wherein the second node is a second type of node selected from a second master node, a second slave node, and a second multiple network participant node.

However, Moon et al disclose that the network can be a Bluetooth network (Column 6, lines 3-10; Column 10, lines 59-67; and Column 11, line 62 to Column 12, line 14). A Bluetooth network is made up of piconet with master nodes, slave nodes, and multiple network participant nodes. Refer to Kuhl et al, Sections 0004 and 0013.

Moon et al also do not disclose wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node.

Kuhl et al disclose that in a Bluetooth piconet, the nodes much know the master/slave definitions so that the network can react flexibly to different network conditions such as a change in topology. For example, a slave can refuse an order from a master if he is occupied with an order from another higher-ranking master. So, the network topology and master/slave assignments must be defined in a network so that a path can be determined since a slave must know which master it is to receive

orders from. Refer to Section 0013. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the calculated connectivity metric for a link of the plurality of links is determined based on the first type of node and the second type of node. One would have been motivated to do so in order so that a path through the network and the cost of the path can be determined. For example, a slave in between two piconets must know whether the next hop is a slave or a master, and if it is a master node, the slave must know if it has to receive orders from it.

Referring to claims 39, 54 and 61, Moon et al do not disclose wherein the first multiple network participant node comprises a first master multiple network participant node and a first slave multiple network participant node wherein the first master multiple network participant node participates in a sub-network of the communication network as a master node, and further wherein the first slave multiple network participant node does not participate in the communication network as a master node.

Kuhl et al disclose in Figure 1 a multiple network participant node 3 that acts as a master multiple network participant node to slave node 1 and slave node 2 and as a slave multiple network participant node to master node 4. Refer to Section 0013 and Section 0055, lines 1-5. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the first multiple network participant node comprises a first master multiple network participant node and a first slave multiple network participant node wherein the first master multiple network participant node participates in a sub-network of the communication network as a

master node, and further wherein the first slave multiple network participant node does not participate in the communication network as a master node. One would have been motivated to do so since Bluetooth networks include Participants in Multiple Piconets (PMP) nodes that are masters in one piconet but are slaves in another piconet.

Referring to claims 42, 57 and 64, Moon et al disclose wherein determining the total connectivity metric of a route of the plurality of routes comprises identifying a maximum connectivity metric of the plurality of links defining the route. A metric can be path length, reliability, latency, bandwidth, load, and communication cost. Path length, for example, is based on the sum of a cost associated with each link that is included in a particular path. Adding up the cost of each link and determining the optimal path involves determining the maximum link costs. Refer to Column 9, lines 9-27.

Referring to claim 48, Moon et al disclose that the method further comprises communicating the calculated connectivity metric to a node of the communication network. As shown in Figure 2, each router 130 of the mobile station sends and receives link information identifying the state of the links to other routers to update their routing table 132. Refer to Column 8, line 43 to Column 9, line 8.

Referring to claim 49, Moon et al disclose that communicating the calculated connectivity metric comprises inserting the calculated connectivity metric into a routing protocol packet. As shown in Figure 2, each router 130 of the mobile station sends and receives link information and metrics identifying the state of the links to other routers to update their routing table 132. According to a certain routing protocol, a metric can be

path length, reliability, latency, bandwidth, load, and communication cost. Refer to Column 8, line 59 to Column 9, line 27.

Referring to claim 50, Moon et al disclose wherein the calculated connectivity metric is inserted into the routing protocol packet in place of a hop number. A metric can be path length, reliability, latency, bandwidth, load, communication cost, or hop count. Since the connectivity metric can be other parameters besides the number of hops, the value of the connectivity metric can be inserted into the routing protocol packet in place of the hop number. Refer to Column 9, lines 9-27.

3. Claims 37, 38, 52, 53 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,084,858 to 6,804,532 to Moon et al in view of U.S. Publication No. 2002/0142789 to Kuhl et al, and in further view of U.S. Publication No. 2003/0119538 to Momosaki et al.

Referring to claims 37, 52 and 60, Moon et al do not disclose wherein, if the first node is the first master node in a sub-network of the communication network and the second node is the second slave node in the sub-network, the connectivity metric is a number of slave nodes in the sub-network.

Momosaki et al disclose a method of distributing bandwidth in a system with a master and a plurality of slaves. The total bandwidth is divided equally amongst the master and all the slaves. If the bandwidth required by each node increases, some slaves may have to be disconnected to order to accommodate the bandwidth requirement changes. Also, since the bandwidth is shared equally amongst all nodes, the number of slaves cannot increase, so the number of the node's slaves must be

known to ensure that it does not go over the bandwidth threshold. The number of slaves is also needed in order to determine the cost of the link, since cost is associated with metrics such as bandwidth and load. Refer to Sections 0075-0076. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein, if the first node is the first master node in a sub-network of the communication network and the second node is the second slave node in the sub-network, the connectivity metric is a number of slave nodes in the sub-network. One would be motivated to do so in order to determine the number of slaves since the number of slaves is related to the metrics of bandwidth and load. The total amount of bandwidth required by all the nodes must not exceed the total amount of bandwidth provided to the system, which must be shared equally amongst all nodes.

Referring to claims 38 and 53, Moon et al do not disclose wherein, if the second node is the second master node in a sub-network of the communication network and the first node is the first slave node in the sub-network, the connectivity metric is a number of slave nodes in the sub-network.

Momosaki et al disclose a method of distributing bandwidth in a system with a master and a plurality of slaves. The total bandwidth is divided equally amongst the master and all the slaves. If the bandwidth required by each node increases, some slaves may have to be disconnected to order to accommodate the bandwidth requirement changes. Also, since the bandwidth is shared equally amongst all nodes, the number of slaves cannot increase, so the number of the node's slaves must be known to ensure that it does not go over the bandwidth threshold. The number of

slaves is also needed in order to determine the cost of the link, since cost is associated with metrics such as bandwidth and load. Refer to Sections 0075-0076. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein, if the second node is the second master node in a sub-network of the communication network and the first node is the first slave node in the sub-network, the connectivity metric is a number of slave nodes in the sub-network. One would be motivated to do so in order to determine the number of slaves since the number of slaves is related to the metrics of bandwidth and load. The total amount of bandwidth required by all the nodes must not exceed the total amount of bandwidth provided to the system, which must be shared equally amongst all nodes.

Allowable Subject Matter

4. Claims 40, 41, 43-47, 55, 56, 58, 62, 63 and 65 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments filed January 9, 2008 have been fully considered but they are not persuasive.

Referring to the argument that Moon et al and Kuhl et al in combination do not disclose that the connectivity metric is "determined based on the first type of node and the second type of node": Kuhl et al disclose that a topology with one master and up to seven slaves optimizes the overall communication performance. However, Kuhl et al

also disclose that in a scatternet, where a device can be a master to some links and a slave to other links, the overall communication performance depends on other parameters. Nodes must know the master/slave definitions so that the network can react flexibly to different network conditions such as a change in topology. For example, a slave can refuse an order from a master if he is occupied with an order from another higher-ranking master. The network topology and master/slave assignments must be defined in a network so that a path can be determined since a slave must know which master it is to receive orders from.

Therefore, the connectivity metric is "determined based on the first type of node and the second type of node", since the overall communication performance of links in a scatternet depends on the role of a device, which can be a master and a slave at the same time. Depending on the role of a device, the communication performance may be sub-optimal. Communication performance is optimal in a piconet with one master and up to seven slaves. Refer to Sections 0005, 0006 and 0013.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTINE NG whose telephone number is (571)272-3124. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C. Ng
March 28, 2008

/FIRMIN BACKER/
Supervisory Patent Examiner, Art Unit 2616

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/606,437	HUANG, LEPING	
	Examiner	Art Unit	
	CHRISTINE NG	2616	